DOCUMENT RESUME

ED 330 089 EA 022 814

AUTHOR Schmitt, Dorren Rafael
TITLE The Effect a Principal Has on the Effective School Program.
PUB DATE Sep 90
NOTE 26p.; Paper presented at the Annual Meeting of the Association of Louisiana Evaluators (New Orleans, LA, September 1990).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Academic Achievement; Administrator Characteristics; *Administrator Effectiveness; *Administrator Evaluation; Elementary Secondary Education; Instructional Leadership; *Leadership Styles; *Principals; School Effectiveness; Urban Education

ABSTRACT

Six schools in an urban school system with varying socioeconomic backgrounds were evaluated to determine what impact different instructional leadership styles have on student achievement. Since the principal is usually considered the instructional leader, the study focused on principal leadership styles, with principals categorized into three main types: responders, managers, and initiators. The schools' principals were asked questions pertaining to their effective schools' program and time management, then requested to fill out a questionnaire about working with teachers, expected student achievement, and achievement influencing factors. A teacher questionnaire was used to determine leadership style. School Comprehensive Tests of Basic Skills (CTBS) scores were used to find any differences in student achievement that resulted from leadership styles. Instructional leadership style did effect student achievement, as did the school's socioeconomic status. However, there was no relation between student achievement and the interaction of leadership style and socioeconomic status. Six tables of results illustrate relationships between varying factors. (21 references) (EJS)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

EA

ED330089

The Effect a Principal has on the Effective School Program

BEST COPY AVAILABLE

Dorren Rafael Schmitt

University of New Orleans

and

Edcom

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

✓ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

D. Schmitt

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Paper presented at the Annual Meeting of the Association of Louisiana Evaluators, New Orleans, LA, September 1990.

EA 022 814

ABSTRACT

A principal is often defined as the instructional leader of the school. The leader should be the mechanism that change takes place and the cohesive bond that keeps the school and program running smoothly. The question is do the principal impact the effective school program? If the principal does impact the program, to what extent does he/she impact the children's achievement?

A study was conducted to determine the impact of the principal in schools with an effective school program. The type of leadership style was investigated through an interview and teacher questionnaire. School CTBS scores were used to determine if instructional leadership style made a difference in student achievement. The instructional leadership style did effect student achievement. Additionally, socioeconomic status (SES) of the school did, but not the interaction between the leadership style and SES.

The Effect a Principal has on the Effective School Program

Effective schools research dates back to the 1960s and the Coleman Report. The Coleman Report (Coleman et al., 1966) was a study conducted in 1966 for the United States Department of Education at the request of the Justice Department. Several noteworthy findings were reported. Included in the conclusions were (a) family background was the major determiner of achievement, (b) the relationship of family background to achievement did not diminish over years of schooling, (c) variations in school facilities, curriculum, and staff have little effect on achievement independent of family background, and (d) the school factors (independent of family background) that had the greatest influence on student achievement was the teacher's characteristics.

These conclusions were the impetus for the effective schools research over the past twenty years. Educational researchers felt Coleman was trying to say that schools had no significant affect on student achievement. "That conclusion spawned criticism, replication, and an in-depth examination of the factors possibly related to student achievement" (Teddlie et al., 1984, p. 26). Coleman's conclusions came under attack by such educational researchers as Edmonds, Lezotte, Brookover, and Rutter.

In the early 1980s, researchers in Louisiana began to investigate effective schooling (Teddlie et al., 1984). The state department of education (SDE) conducted school

effectiveness studies from 1980 through 1985 (Teddlie, Stringfield, & Swarez, 1985). With the reduction in state funding, further school effectiveness research has become the responsibility of the local education agencies (LEAs) and individual schools.

The state has turned to the Administrative Leadership Academy of Louisiana to provide workshops to school administrators (including assistant principals, principals, assistant/associate superintendents, superintendents, and other central office personal who are directly involved with classroom instruction) to provide meaningful training programs to enhance their administrative skills and their knowledge of current issues. The state envisions the school administrator as the key to effective schools and thus is attempting to provide improved school administrators in Louisiana.

A large urban school system (LUSS) studied in this research project, with the encouragement from the SDE, has committed itself to a program for developing effective schools. The Louisiana state legislature has funded professional development centers (PDCs) to provide in-service in the districts who request services, such as workshops and video tapes on school effectiveness.

The present study investigated to what extent do principals affect the academic level of the students. Additionally, this study investigated how much time the principal devoted to the instructional aspects of the school.

The research questions include:

(1) What amount of time does the principal devoted to instructional leadership activities as opposed to administrative activities? (Principal self-reported)

(2) What impact do the different instructional leadership styles of a principal have on the achievement of the students?

GENERAL RESEARCH BACKGROUND

The Coleman Report began a wave of discussions of school effectiveness. By the mid- to late-1970s, other educational researchers conducted studies in an attempt to confirm or refute Coleman's findings. Edmonds (1979) disagreed with Coleman's position regarding the relative unimportance of school facilities, curriculum, and staff in promoting student achievement. Based on his research, Edmonds (1979) published a list of characteristics he had found to be associated with effective schools. These "correlates" are the most widely used throughout the nation.

Although Edmond's model is the most popular, other effective school models have been developed. D'Amico (1982) identified three other frequently adopted models (e.g., Brookover & Lezotte, 1979; Phi Delta Kappa, 1980; Rutter et al., 1979). Each model takes a slightly different perspective at what makes a school effective. There is little consensus on the characteristics of an effective school. Likewise, agreement can not be made on the correlates' description and means of assessment.

INSTRUCTIONAL LEADERSHIP RESEARCH

Brookover, Lezotte, Edmonds, and Rutter have emphasized the importance of instructional leadership. The principal is usually considered the instructional leader and the role he/she plays in the effective school is important.

Recently, researchers have been concerned with the role of the instructional leader. Sellarole (1986) discusses the need for a strong instructional leader who is easily accessible, provides an interchange of ideas to the faculty, and is an effective communicator. Murphy (1983) cited additional characteristics including the principal should be knowledgeable about curriculum and instruction, spend considerably more time on instructional duties rather than managerial duties, develop clear school goals, and be actively involved in providing staff development.

Principal Leadership Styles

Leadership styles have been widely researched (Fiedler, 1971; Hall & Griffen, 1982; Hall, Rutherford, Hord, & Huling, 1984; Hord & Hall, 1982). Hall and Rutherford (1983) found three leadership styles exhibited by principals. These were responders, managers, and initiators. Each of these styles represent a distinct set of dimensions as exhibited by the principals.

Responders place heavy emphasis on allowing teachers and others the opportunity to take the lead.

The principal's primary role is to maintain a smooth running school by focusing on traditional administrative tasks, keeping teachers content, and treating students well. Before making decisions, everyone is given an opportunity to have input so as to allow others to make the decision. A related characteristic is the tendency toward making decisions in terms of immediate circumstances rather than in terms of longer range instructional or school goals.

Managers represent a broader range of behaviors. They demonstrate both responsive behaviors in answer to situations or people and they also initiate actions in support of the change effort. The variation in behavior seem to be linked to rapport with teachers and central office staff. Managers work without fanfare to provide basic support to facilitate teacher's use of the innovation. They keep teachers informed about decisions and are sensitive to teachers' needs. When they learn that the central office wants something to happen in their school, they become very much involved with their teachers in making it happen. Yet, they do not typically initiate attempts to move beyond the basics of what is imposed.

Initiators have clear, decisive long-range policies and goals that transcend but include implementation of the current innovation. They tend to have very strong beliefs about what good schools and

teaching should be like and work intensely to attain this vision. Initiators have strong expectations for students, teachers, and themselves. Initiators convey and monitor these expectations through frequent contacts with teachers and clear expectation of how the school is to opperate and how teachers are to teach. Initiators will seek changes in district programs or policies or they will reinterpret them to suit the needs of the school. They solicit input from staff and then decisions are made about the goal of the school even it some are ruffled by their directness and high expectations. (Hall & Rutherford, 1983).

No principal fully fits into any one style. These styles are used to represent three markers in a continummum that ranges from a responder at one end to an initiator at the other. These styles will be the basis for categroizing the principals in this study and to compare groups of principals.

Principal Leadership Studies

Over the past 15 years many studies have focused on principal leadership. The impact of the principal style on student achievement has been studied in New York, California, and Louisiana.

Weber (1971) conducted a study for the state of New York office of education attempting to identify differences between four New York elementary inner city schools (two achieving, to non-achieving). Through interviews and observations of the

principals, Weber (1971) found the administrators provided more leadership and a balance between management and instructional skills in the achieving schools which were not found in the non-achieving schools.

A three-year study in California investigating the factors influencing high and low socioeconomic status (SES) effective schools was undertaken by Hallinger and Murphy (1986). They found that in low-SES schools, the instructional leader coordinated curriculum, controlled instruction, and was task oriented. On the other hand, the high-SES schools needed principals to coordinate the curriculum, be more relationship oriented, and have less control over instruction than their low-SES counterparts. The research of Hallinger and Murphy (1986) indicate that there should be no one set of standards for effective instructional leadership.

Studies by Teddlie, Stringfield, Wimpleberg, and Kirby (1987) and Evans (1988) also provide some evidence that context differences affect the effectiveness of a particular principal style. Expectations of academic success of lower students with modest gains through hard work were expected of students in low-SES schools, while middle-SES school students were more frequently expected to have high future academic successes (Teddlie et al., 1987).

Likewise, Evans (1988) encountered differences in principal style preferences in ineffective low-SES, ineffective middle-SES, effective low-SES, and effective middle-SES schools, based on teacher opinions. Hall's (1984) principal styles (initiator,

manager, and responder) were used. Of the three principal styles, the manager was the most often identified by teachers as describing their principal by the total sample (64.7%). This held true for the subgroups, with the most notable being effective middle-SES schools (72.4%) while only 57.4 percent of ineffective middle-SES teachers identified the principal as a manager. Thus, the educational environment affects the perception of teachers relative to instructional leadership. This is the essense of situational leadership.

Effective Principal Behaviors

In recent years, the adequacy of data collection techniques in effective schools research has been discussed. The over reliance on survey and other quantative methods have been criticized. Donmoyer (1985) attempted to overcome this problem using ethnographic procedures in a study of an award-winning elementary school in a western Pennsylvania mining community. Using only descriptive information, Donmoyer (1985) found that the principal was a significant factor.

> He instilled positive social communication, inspired personal closeness with the teachers and students, fostered a sense of team spirit, viewed himself as an instructional leader, and was an active fund raiser (Donmoyer, 1985, p. 41).

In a paper presenting eight case-studies in which principal leadership was associated with student reading achievement, Nelson (1983) found five factors that were highly positively

associated with reading achievement. These factors included: (a) creating a safe and orderly school environment, (b) showing a high degree of program involvement, (c) showing a high level of expectations, (d) establishing clear goals, and (e) using achievement tests to evaluate skills.

Many school systems have embraced the ideas of using an effective school model to improve schools. Schools are becoming more attuned to correlates, suggested by Edmonds, educating their faculties as how to improve the effectiveness of their school. The school improvement models of Edmonds and others are particularly popular in large urban and suburban areas with large minority populations and/or large groups of students from lower socioeconomic groups.

METHODOLOGY

Sample

Six schools in a Large Urban School System were involved in this evaluation. Five schools were elementary and one was a junior high school. The schools were geographically spread out over the district and had students with varying socioeconomic backgrounds. The average size of the six schools was approximately 600 students. The range in socioeconomic level in the schools was from 38 percent to 58 percent of the students on free lunch. Over 75 percent of the teachers were at their school for over 5 years with no more than 6 non-tenured teachers at any one school. Three principals were in their first year at the school while the other three had 8 or 10 years at that school.

All but one principal had 6 or more years as a principal; the one principal was in his first year as a principal.

Based on Hall's (1984) leadership model two types of principals were involved in this study, initiators and managers. The initiators were characterized by establishing long-range policies, holding high expectations for students, teachers, and themselves, mobilizing support to achieve academic goals, and actively participating in staff development. The managers were characterized by responsive behaviors in answer to situations, initiated actions to support faculty effort to change the school, were knowledgeable about instructional resources, and assisted the faculty in such tasks as interpreting test results and in using varied instructional strategies.

There were two basic types of school effectiveness programs found in the schools: defined effective school programs (DESP) and less defined effective school programs (LESP). A defined effective school program was one that established clear organization, clear goals and objectives formally stated and addressed through actions at the school, and specified action plans to address the goals.

Procedures

During the Fall semester of 1987, the six principals were interviewed for approximately thirty minutes. The principals were asked questions pertaining to the effective school program and time management. Following the interview, the principal was asked to answer a questionnaire, adapted from Brookover et al.

(1979), which took about ten minutes. The questionnaire included questions about working with teachers, expected achievement levels of students, and factors influencing achievement.

A questionnaire was then given to the teachers. This questionnaire was adapted from Andrews et al. (1987) Staff Assessment Questionnaire (SAQ). The teacher questionnaire was used to determine the principal style. This questionnaire took approximately ten minutes to administer.

RESULTS

1. What amount of time does the principal devoted to instructional leadership activities as opposed to administrative activities? (Principal self-reported)

Principal's duties were divided into three categories from the interview: instruction, discipline, and management. All of the principals agreed that their duties could be divided into those categories. They expressed difficulty in determining the amount of time spent on these various tasks, but felt that instruction was the main responsibility. One principal referred to himself as the "principal teacher". These data are displayed in Table 1, which lists the approximate amount of time spent on these three tasks.

INSERT TABLE 1 ABOUT HERE

For an understanding of how the principals interpreted instruction, discipline, and management activities, definitions were derived from the interviews. Instructional activities included: observing teachers, ordering instructional materials, advising teachers on academic matters (advising was usually done through notes in the teachers' boxes or asking for the teacher to have a "chat" with the principal), reading lesson plans, talking to parents about student academic performance, and performing other similar tasks. Discipline tasks included: signing suspensions, meeting with parents on suspensions, monitoring behavior on the playground and cafeteria, et cetera. Management tasks included: ordering supplies, completing forms and other paper work, overseeing general school maintenance, "managing personnel", and attending professional meetings and conferences. Attending professional meetings and conferences was placed in management tasks because such activities could not only provide ideas for instructional and discipline activities, but also yield needed information pertaining to equipment and supplies.

For five of the principals, the instructional activities occupied at least 50% of the week's work time; the remaining principal spent approximately 40% of the time on instructional activities. Management was considered to be less time consuming because some of the tasks could be handled by the secretary or other administrative assistant.

During a 40 hour work week, 43% of the time was spent on

instructional tasks, 20% was spent on discipline and also management, and 17% was spent on other tasks. The most inexperienced principal (school 03) spent substantially more time on management and the least amount of time on instruction. Even with a disciplinarian, the principal of school 06 spent 18% of his time on discipline, just below the mean. The principals who devoted above the mean percentage to instruction included schools 01, 04, and 05. Two of these three schools have well defined effective school programs, schools 04 and 05. These two schools also spent the least amount of time on discipline, 13% of the week.

The principals in these schools placed an emphasis on instructional tasks and then on management and discipline. The principals did express the need for good discipline inorder for effective instruction to take place. Generally, their feelings were that the teachers should be the first line of discipline with the principal the last line of discipline. thus, the principals did spend an appreciable amount of time on discipline given these ideas.

2. What impact do the different instructional leadership styles of a principal have on the achievement of the students?

Three null hypotheses were formulated to answer this critical question. The three null hypotheses were tested using a 2 X 2 factorial MANOVA. Any results found to be statistically significant was then further analyzed using

appropriate univariate F-tests. See Table 2 for MANOVA and univariate analyses.

INSERT TABLE 2 ABOUT HERE

Hypothesis 1: There will be no difference between mean school NCE scores for different principal styles (manager and initiator).

This null hypothesis used principal styles as the independent variable and Total Mathematics and Total Reading scores as the dependent variables. Statistically significant multivariate results were determined for this hypothesis [$F(2, 179) = 7.56$, $p<.001$]. Thus, there was a difference on the mean NCE scores for different principal styles. Further analysis was performed using univariate statistics. For the two univariate cases, using mean Total Reading and mean Total Mathematics, the null hypotheses were also rejected. These additional analyses showed that the principals who were identified as managers had school CTBS means statistically higher than the principals identified as initiators. This seems to be partly a product that the schools with managers had higher school mean scores on the average than schools with initiators as principals for the past 3 years.

Additionally, for the one year effect of the principal, the effect sizes were 3.2 percent for Total Reading and 8.4 percent for Total Mathematics. Although these are relatively low effect sizes, these are just assessing the principal and effective schoool program impact for one year. Tables 3 and 4 provide details of the univariate analysis.

INSERT TABLES 3, AND 4 ABOUT HERE

Hypothesis 2: There will be no difference between mean school NCE scores for different SES groups (free and paid lunch).

This null hypothesis used SES groups as the independent variable and Total Mathematics and Total Reading scores as the dependent variables. A school was considered in the lower SES group if over 50% of the students were on free lunch, and a school was considered in the higher SES group if over 50% of the students were on paid lunch.

Statistically significant multivariate results were determined for this hypothesis [$F(2, 179) = 58.08$, $p<.0001$]. Thus, there was a difference between the mean NCE scores for different SES groups. Further analysis was performed using univariate statistics. For the two univariate cases, using mean Total Reading and mean Total Mathematics, the null hypotheses were also rejected. These additional analyses showed that the schools in the higher SES group had statistically higher CTBS means than did the schools in the lower SES group.

The effect sizes, particularly for Total Reading, were noteworthy. The effect size on Total Reading for SES was 35.6 percent. This effect size is definitely educationally significant. The effect size for Total Mathematics was relatively small with 3.3 percent. This contrast emphasizes

where the differences between SES groups are found. Tables 5 and 6 for details of the ANOVA tests including the effect sizes.

INSERT TABLES 5 AND 6 ABOUT HERE

Hypothesis 3: There will be no interaction effect between the principal style and school SES on mean NCE scores.

This null hypothesis used SES groups and principal style as the independent variables and Total Mathematics and Total Reading scores as the dependent variables. The purpose of this hypothesis was to determine if there was an interaction effect between principal style and SES.

No statistically significant results were determined for this hypothesis [$F(2, 179) = .172$, $p<.842$]. Thus, there was no interaction between the SES groups and principal styles. Since the multivariate case did not result in statistical significance the univariate cases were not considered.

DISCUSSION

Based on the MANOVA results, the principal stylde does impact student achievement. This impact was statistically significant, and, given only one year effect, educational importance can also be claimed. In particular, the principals that were managers, tended to have students who scored higher on achievemnet tests than the initiator for both the Total Mathematics and Total Reading scores. This contradicts some of the conclusions of Andrews (1987).

Additionally, the smallest test disparity between the SES groups on the CTBS was in the Total Mathematics test. This was not unexpected since the Mathematics test requires limited reading and the answers could be clearly determined to be either right or wrong. Thus, mathematics abilities are not effected as much by SES as reading abilities.

As educators knew from Coleman and Jenks, SES makes a difference. As noted, a substantial statistical and educational difference was found for the Total Reading test. But, the influence of the principal has not been as well supported. This brings about new questions to the impact that the principal has on the school. This is both reflected in the division of work time to major tasks of a principal to the bottom line, the change in student achievement.

REFERENCES

Andrews, R. L., Soder, R. P., Jacoby, D., Rosovsky, C., & Bamburg, J. (1987). Technical manual School Self Assessment Instrument. University of Washington.

Brookover, W. B., & Lezotte, L. W. (1979). Changes in school characteristics coincident with changes in school achievement. East Lansing: Institute for research on Teaching, Michigan State University. (ERIC Reproduction Document No. ED 181 005).

Coleman, J., Campbell, E., Hobson, C., Partland, J., Mood, A., Weinfield, F., & York, R. (1966). Equality of educational opportunity. Washington, D.C.: U.S. Government Printing Office.

D'Amico, J. (1982). Each effective school may be one of a kind. Educational Leadership, 39, 61-62.

Donmoyer, R. (1985). Cognitive anthropology and research on effective principals. Educational Administrative Quarterly, 21, 31-57.

Edmonds, R. (1979). Effective schools for the urban poor. Educational Leadership, 37, 15-24.

Evans, R. L. (1988). A study of the relationship between principals' change styles, school socioeconomic context, and school effectiveness. Ph.D. Dissertation, University of New Orleans.

Hall, G. E., & Griffin, T. (1982). Analyzing context/climate in school settings -- which is which? Paper presented at the annual meeting of the American Educational Research Association, New York.

Hall, G. E., & Rutherford, W. L. (1983). Three change facilitator styles: How principals affect improvement efforts. Paper presented at the annual meeting of the American Educational Research Association,

Montreal, Canada.

Hall, G. E., Rutherford, W. L., Hord, S. M., & Huling, L. L. (1984). Effects of three principal styles on school improvement. Educational Leadership, 41(5), 22-29.

Hallinger, P., & Murphy, J. E. (1986). The social context of effective schools. American Journal of Education, 94, 328-355.

Hord, S. M., & Hall, G. E. (1982). Procedures for quantitative analysis of change facilitator interventions. Paper presented at the annual meeting of the American Educational Research Association, New York.

Murphy, A. (1983). Factors that contribute to school effectiveness. Thrust, 12(7), 19-21.

Nelson, D, (1983). School leadership and reading achievement: Eight case studies. Paper presented at the annual meeting of the International Reading Association. (ERIC Reproduction Document No. ED 237 961).

Phi Delta Kappa. (1980). Why do some urban schools succeed? Bloomington, IN: Authors.

Rutter, M., Maughon, B., Mortimore, P., Ouston, J., & Smith, A. (1979). Fifteen thousand hours: Secondary schools and their effects on children. Cambridge, MA: Harvard University Press.

Sellarole, J. (1986). Cosmos exit report: A study related to school effectiveness. Thrust, 16(2), 46-47.

Teddlie, C., Falkowski, C. Stringfield, S., Desselle, S., & Garvue, R. (1984). The Louisiana school effectiveness study: Phase two 1982-1984. Baton Rouge, LA: Louisiana State Department of Education.

Teddlie, C., Stringfield, S., & Swarez, S. (1985). Classroom interaction in effective and ineffective schools: Preliminary results from phase III of the Louisiana school effectiveness study. Journal of

Classroom Instruction, 20(2), 31-37.

Teddlie, C., Stringfield, S., Wimpleberg, R., & Kirby, P. (1987). Contextual differences in effective schooling in Louisiana. Paper presented at the annual meeting of the American Educational Research Association, Washington, D.C.

Weber, G. (1971). Inner-city children can be taught to read: Four successful schools. Washington, D.C.: Council for Basic Education.

Table 1

Principal's Percentage of Time on Three Major Categories of Activities[a]

School	Instruction % of time	Discipline % of time	Management % of time	Other % of time
01	50	23	15	12
02	40	23	15	22
03	40	15	33	14
04	50	13	23	14
05	50	13	13	24
06	45	18[b]	15	22
Mean	45	20	20	15

[a]average percentage of hours per week
[b]school has administrative assistant and disciplinarian

Table 2
MANOVA and ANOVA Summary Table for the Effect of Two Variables on Mean Total Reading and Mathematics Scores

	MANOVA F-exact		Mean Total Reading		Mean Total Mathematics	
Source of Variation	df	F	df	F	df	F
Principal Type (A)	2/179	7.56**	1/180	5.96*	1/180	15.17**
Socio-economic Status (B)	2/179	58.08**	1/180	99.59**	1/180	6.19*
Interaction A X B	2/179	0.71	1/180	0.34	1/180	0.14

Note. F-exacts were based on Wilks' Lambda Criterion (Shavelson, 1981).
* $p < .05$
** $p < .001$

Table 3
ANOVA Summary Table for the Effect of Principal Style on Mean Total Reading

Source	SS	df	MS	F	Effect size
Between Prin	13.49	1	13.49	5.96*	3.2%
Within Prin	407.25	180	2.26		

*p<.05

Table 4
ANOVA Summary Table for the Effect of Principal Style on Mean Total Mathematics

Source	SS	df	MS	F	Effect size
Between Prin	129.42	1	129.42	15.17*	8.4%
Within Prin	1535.70	180	8.53		

*p<.001

Table 5
ANOVA Summary Table for the Effect of School Socioeconomic Level on Mean Total Reading

Source	SS	df	MS	F	Effect size
Between SES	225.01	1	225.01	99.59*	35.6%
Within SES	407.25	180	2.26		

*p<.001

Table 6
ANOVA Summary Table for the Effect of School
Socioeconomic Level on Mean Total Mathematics

Source	SS	df	MS	F	Effect size
Between SES	52.84	1	52.84	6.19*	3.3%
Within SES	1535.70	180	8.5344		

* $p < .05$